

LASER®

VACUUM/PRESSURE TESTING KIT



APPLICATIONS

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3752

The Laser Vacuum/Pressure Testing Kit (3752) is distributed by Tool Connection Ltd. If you would like details of other tools and equipment in our range, please ring or write for a copy of our catalogue.

Warning notice - read NOW

It is always recommended to refer to the vehicle manufactures workshop manuals for specific procedures and technical data when using these tools

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LASER®

Vacuum/Pressure Testing Kit

A complete kit for Vacuum Testing and One-man Brake Bleeding

This vacuum and pressure pump creates and holds a metered vacuum for testing a wide variety of automotive, marine, aircraft, motorcycle maintenance and agricultural equipment.

Simply select the air intake control valve on the pump.

- Out for pressurizing systems
- In for testing vacuums

This set provides many tests including:

- Automatic transmission
- Vacuum reservoirs
- Heater Cones
- Air Conditioning and Heating
- Fuel Systems
- Engine tuning
- Engine management systems
- Emission Control Systems
- Ignition Systems
- Brake Systems (including ABS and conventional)
- Engine maintenance including:
 - Cylinder Head
 - Valve Stem Oil Seals
 - Piston ring retainer on Diesel engines
 - Waste gases on Turbo chargers

Brake bleeding

Most low and soft pedal problems are caused by air in the hydraulic lines.

The creation of a vacuum in the reservoir jar causes the fluid to be drawn out. Always refer to the appropriate service manual for manufacturers' brake bleeding procedures.

1. Always make sure that the master cylinder reservoir is filled and that a supply of new clean brake fluid is available to top up the reservoir as the fluid drops.
2. Bleed the hydraulic system in the following order
 - A Master Cylinder bleeder screws
 - B Bleeder Screws on the combination valve
 - C Wheel cylinders and callipers in succession, beginning with the wheel closest to the master cylinder and working around to the furthest.
 - D Slip 1 1/2" of tubing between the pump and the lid of the reservoir jar at port marked 'TO PUMP'
 - E Attach 3 1/2" plastic pipe to the bottom of the cap
 - F Fix a 12" piece of tubing to the other reservoir Jar port.
 - G Select the correct adaptor (L-Shaped) Small Medium and Large.

They should fit snugly over the brake bleeding nut in order to seal properly.
 - H The tapered adaptors fit inside the nut and will form a seal if pushed with twisting action.
 - I The adaptor is then attached to reservoir hose
 - J Place wrench on Brake Bleeding Nut, attach adaptor and pump assemble and pump 10-15 times
 - K Open nut slightly, enough to cause fluid to enter reservoir (usually 1/4 to 1/2 turn).
 - L After extracting 1" of fluid, tighten nut, refill master cylinder and proceed to next wheel.
 - M Repeat all previous steps

IF THE FLUID IS NOT DRAWN INTO THE RESERVOIR, CHECK THE LID IS TIGHT

Parts and specifications

Check your Timing Tool Set carefully to make sure you have all the components. If any are missing, please contact Laser

Tools on 01926 815000 -

You should have all the following components:

Dual reading gauge 50mm reads;

- Vacuum 0 to 30in Hg (0 to -1Bar)
- Pressure 0 to 60Psi (0 to 1.4Bar)
- Cup adaptor
- Vacuum gauge scaled in inches and centimetres
- Adaptor assembly package
- Holds 25 inches of Mercury vacuum
- Transfer and storage lid
- Pumps approx. 120ml per stroke
- 2 x Reservoir jar
- 2 x 60mm lengths of 1/4" tubing

Suspected Fault	Connection of Pump	Activity of Gauge on Pump	Gauge Fluctuation
Normal Engine	Connect Pump to manifold vacuum port.	The needles movement should be steady and hold between 16-22 Hg.	16-22 Hg
Burned or Leaking Valves	Connect Pump to manifold vacuum port	The needle will drop to a low reading and return to normal at regular intervals (when the defective valve attempts to close).	1 – 7 Hg
Weak or Broken Valve	Connect Pump to manifold vacuum port	The needle fluctuates rapidly at regular intervals The fluctuations will increase with engine speed.	10- 21 Hg
Sticking Valve	Connect Pump to manifold vacuum port	A sticking valve will give a rapid intermittent drop from the normal reading	
Worn Valve Guides	Connect Pump to manifold vacuum port	The needle will read lower than normal and will fluctuate rapidly. As the speed of the engine increases the gauge will steady	Range of 3 Hg
Leaking Piston Rings	Connect Pump to manifold vacuum port	The vacuum reading at idle will be low but steady Open the throttle up to approx 2000 rpm. Close throttle quickly. The needle should jump 2 – 5Hg above lowest setting. A lesser gain would indicate faulty piston rings	12 – 16 Hg
Blown Cylinder Head Gasket	Connect Pump to manifold vacuum port	The needle on the vacuum will drop from a normal reading and return each time the defective cylinder or cylinders reach firing position.	Approx. 10 Hg
Exhaust Restriction	Connect pump hose to intake manifold vacuum fixing	Operate engine at idle and increase rpm to 2500. If the needle drops toward zero either an exhaust restriction or an over-active Exhaust Gas Recirculation valve is causing the problem	
Incorrect Idle Air/Fuel Mixture		When the needle on the gauge drifts slowly back and forward at idle the fuel mixture is too rich. A lean mixture will cause an irregular drop of the needle over the same range.	4- 5 Hg
Late Ignition or Valve Timing		An extremely slow but steady reading at idle indicates late ignition or incorrect valve timing	
Positive Crankcase Ventilation	Intake Manifold Port	Clamp off the vacuum hose to PCV valve, the engine speed should System decrease by 100rpm to indicate the loss of the calibrated air leak into the intake manifold. If the engine is idling too slow or is rough, check the PSV valve before adjusting the Carburettor.	
Exhaust Gas Circulation (EGR)	Connect the pump to the vacuum supply hose at the EGR Valve	Check that there is 4 -5 Hg at 2000rpm. If the engine dies at idle, loses power or becomes rough replace the EGR valve. An EGR valve can operate normally when the engine is warm but remains open when the engine is cold.	
Spark Delay Valves (SDV)	Connect Vacuum pump into the hose leading to the carburettor spark port	Select neutral gear, set the carburettor to fast idle, remove spark plug- delay valve. Observe time in seconds for the needle to reach 6 Hg with 10-16Hg vacuum source. If this happens in less than 2 secs. the SDV should be replaced.	10 – 16 Hg